

NCHS Data on Patient Safety

About NCHS

The CDC's National Center for Health Statistics (NCHS) is the nation's principal health statistics agency, providing data to identify and address health issues. NCHS compiles statistical information to help guide public health and health policy decisions.

Collaborating with other public and private health partners, NCHS employs a variety of data collection mechanisms to obtain accurate information from multiple sources. This process provides a broad perspective to help us understand the population's health, influences on health, and health outcomes.

Patient Safety

The Institute of Medicine has identified patient safety as one component of health care quality. Providing safe care means avoiding, preventing, or improving adverse outcomes and injuries resulting from the process of receiving health care. Investigating the use of health care services to treat the adverse effects of medical treatment allows us to better understand the overall safety of the health care system, the types of complications that occur, the types of procedures or medications most associated with patient safety concerns, and the kinds of patients most at risk for experiencing adverse effects of medical treatment.

NCHS data on the adverse effects of prior medical and surgical treatment at a national level, point the way toward quality improvement initiatives that can result in a safer health care system

Key Findings

Complications of prior medical or surgical treatment

NCHS data show that in 2002, there were 33,051 deaths involving complications of medical or surgical care.

NCHS also captures data on the use of health services across ambulatory, inpatient and long-term care settings, offering the opportunity to look at patient safety from a variety of perspectives.

The emergency department (ED) is the place where patients seek treatment for the most serious complications of prior medical care and is an important barometer of the safety of the U.S. health care system.

- In 2003, there were approximately 1.7 million visits to the nation's EDs for adverse effects of medical or surgical treatment.
- Visits to EDs for adverse effects have increased over time, particularly for selected age groups. Between 1992 and 1999, visits to EDs for injuries caused by adverse effects of medical treatments or surgical procedures increased 67 percent for all ages, 103 percent for persons aged 45-64, and 110 percent for seniors.

There has also been an increase in complications of medical and surgical procedures among hospitalized patients over time.

- From 1990 to 2002 the number of hospitalized patients with a complication rose from 1.4 to 1.9 million or from 4.4 to 5.5 percent of all discharges.

Improving the safety of the health care system

The increase in hospital complications may result from several factors including increases in the number and complexity of procedures performed, the aging of the population, and the movement of procedures to ambulatory settings.

Medications and safety

NCHS data have been used to highlight a specific type of adverse effect, adverse drug effects - reactions to medications that were serious enough to result in subsequent treatment in a physician's office, hospital clinic or ED.

- In 2001 there were 4.3 million ambulatory care visits for adverse drug effects, and there has been a significant upward trend in the number of such visits from 1995 to 2001. Four classes of drugs (antibiotics and other anti-infectives; hormones and synthetic substitutes; analgesics, antipyretics, and antirheumatics; and agents primarily affecting the cardiovascular system), were most frequently implicated, accounting for half of these visits.

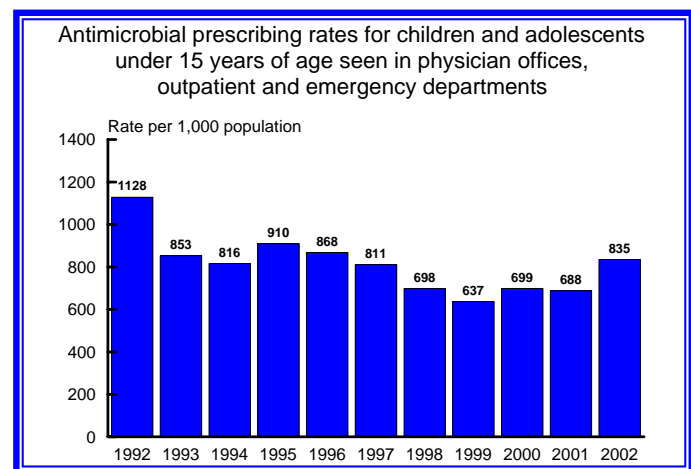
NCHS data have also been used to examine the extent to which physician prescribing practices are consistent with medical evidence. Using measures based on explicit criteria developed by a panel of medical and pharmacology experts, researchers identified visits where persons age 65 and older received one or more medications considered potentially inappropriate for that age group.

- During 2000, an estimated 3.8 percent of visits to physician offices and hospital outpatient departments included medications deemed by experts to be rarely or never appropriate.

Researchers also examined the time period from 1995 to 2000 to determine if there had been any reductions in the prescribing of potentially inappropriate medications for the elderly. They found that the percent of visits with such medications prescribed did not decline, thereby suggesting that there may be continued room for targeted quality

Once quality improvement opportunities have been identified, NCHS data can be used to highlight safety-related improvements in clinical performance and to document the extent to which new technologies aimed at improving patient safety are adopted by health care providers.

- Antibiotics have often been used to treat upper respiratory infections in children despite evidence that such treatment is not effective for diseases that are viral in nature. In 1995, CDC initiated a national campaign to promote more appropriate antibiotic prescribing for such conditions. NCHS data identified significant declines in antibiotic prescribing over a ten year period – from 1,128 per 1,000 children under the age of 15 in 1992 to 835 per 1,000 in 2002.



Source: National Health Care Survey, 2004.

Patient safety advocates support the implementation of system-level process improvements to improve quality of care. Most notably, implementation of electronic health records has been the focus of national attention and of a DHHS initiative toward quality improvement. NCHS data show that during 2001-2003 electronic medical records were used in nearly one-third of hospital emergency and outpatient departments and less frequently (17.2 percent) in physician offices. Only 8 percent of physicians used computerized systems for ordering prescriptions electronically. These data have been used to document baseline use of electronic health records and other technologies. Future surveys will provide information about adoption across the health care system over time.

Patient Safety Data Sources

- **National Health Care Survey** - a family of health care provider surveys, obtaining information about the facilities that supply health care, the services rendered, and the characteristics of the patients served. NHCS surveys hospitals, office-based physician practices, emergency and outpatient departments, ambulatory surgery centers, nursing homes, and home health and hospice agencies. These surveys provide a picture of how the delivery system works, and provide an opportunity to learn about patients, their illnesses, and treatments. (<http://www.cdc.gov/nchs/nhcs.htm>)
- **National Vital Statistics System** - collects information from birth and death certificates in all 50 states and the District of Columbia, including detailed race/ethnicity characteristics, and information on underlying and contributing causes of death. Because all births and deaths are part of this database, it provides the detail needed for research on differentials. (<http://www.cdc.gov/nchs/nvss.htm>)

Challenges and Future Opportunities

- Collect additional information about characteristics of the health care system to better describe factors that lead to better quality and a safer health care system.
- Expand the sample size of the NHCS surveys to permit analyses of complication trends by age, sex and race.
- Redesign the National Hospital Discharge Survey to capture more clinical data to provide information that will help target quality improvement initiatives.
- Re-field components of the National Health Care Survey to collect data on ambulatory surgical centers, home health agencies, and hospice agencies and initiate new surveys in health care settings that are not currently part of the NHCS (assisted living facilities, for example) to obtain a more comprehensive picture of quality and patient safety across the health care system.

For further information about NCHS and its programs, visit us at <http://www.cdc.gov/nchs>, or call the Office of Planning, Budget and Legislation at 301-458-4100.

July 29, 2005.